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ART UNIT	**PAPER NUMBER**
2666	

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/700,011	GOODALL ET AL.	
	Examiner	Art Unit	
	Michael J. Moore, Jr.	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-72* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16-21,23,26-39 and 42-72* is/are rejected.

7)☒ Claim(s) *15,22,24,25,40 and 41* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/17/04*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 2/17/04 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statement.

Specification

Amendments made to the specification and claims provided in Applicant's preliminary amendment are proper and have been entered.

Claim Objections

2. Claims **1, 6, 9, 12, 19, 26, 32, 46, 48, 53, 58, 61, 63, 64, 68, and 69** are objected to because of the following informalities:

Regarding claim **1**, on line 17, the term "EVM" should be "error vector magnitude" in this first instance. Also, on line 18, the word "the" is missing between words "to" and "request". Lastly, on line 20, the word "the" before both words "quality" and "link" should be "a".

Regarding claim **6**, on line 16, the term "EVM" should be "error vector magnitude" in this first instance.

Regarding claim **9**, on line 11, the word "the" before word "received" should be "a".

Regarding claim **12**, on line 2, the term "EVM" should be "error vector magnitude" in this first instance.

Regarding claim **19**, on line 7, the word “that” is missing between words “such” and “the”.

Regarding claim **26**, on line 16, the term “EVM” should be “error vector magnitude” in this first instance. Also, on line 16, the word “the” after word “of” should be “a”.

Regarding claim **32**, on line 2, the term “EVM” should be “error vector magnitude” in this first instance.

Regarding claim **46**, on line 13, the word “the” before word “signal” should be “a”.

Regarding claim **48**, on line 2, the term “EVM” should be “error vector magnitude” in this first instance.

Regarding claim **53**, on line 14, the term “EVM” should be “error vector magnitude” in this first instance. Also, on line 14, the word “include” should be “includes”. Also, on line 15, the word “the” is missing between words “to” and “request”. Lastly, on line 17, the word “the” before word “quality” should be “a”.

Regarding claim **58**, on line 2, the term “EVM” should be “error vector magnitude” in this first instance.

Regarding claim **61**, on line 14, the word “the” before word “signal” should be “a”.

Regarding claim **63**, on line 2, the term “EVM” should be “error vector magnitude” in this first instance.

Regarding claim **64**, on line 18, the term “EVM” should be “error vector magnitude” in this first instance.

Regarding claim **68**, on line 7, the word "the" before word "received" should be "a".

Regarding claim **69**, on line 2, the term "EVM" should be "error vector magnitude" in this first instance.

Appropriate correction is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claim **6** is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim **3** of copending Application No. 10/367010. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following correspondences.

Regarding claim **6**, "a radio receiver to wirelessly receive data from at least one remote station, said data transmitted by the remote station as at least one packet of data, the receiver including an analog-to-digital converter producing samples of signals received at the station from the remote station" corresponds to "a receiver to receive

data from a remote node, including an analog-to-digital converter producing samples of signals received at the node from the remote node, said received signals in the form of packets of data" in claim **3** of the copending application.

"A demodulator coupled to the radio receiver to demodulate samples of the signals received at the receiver from each station to produce demodulated signals from each of the remote stations" corresponds to "a demodulator coupled to the receiver to demodulate samples of the signals received at the receiver to produce demodulated signals, the samples at decision points" of claim **3**. "A signal quality calculator coupled to the receiver to determine for each remote station from which data is received a measure of the received signal quality based on the samples of the received data from the remote station" corresponds to "an EVM calculator coupled to the receiver to determine a measure of the signal quality of the decision point samples of the received signal" of claim **3**.

"A transmitter to transmit data for transmission" corresponds to "a transmitter to transmit data for transmission to the remote node" of claim **3**. Lastly, "wherein a message to a particular remote station in response to the data received from the particular remote station includes a measure of the EVM of the data received from the particular remote station" corresponds to "wherein a packet for transmission from the node to a particular remote node by the transmitter includes a measure of the signal quality produced by the EVM calculator from signals received from the particular remote node" of claim **3**.

Claim **6** differs from claim **3** of the copending application for the following reasons. Claim **6** does not claim "the EVM measure determined by the EVM calculator can be used to select a data rate for communicating between the node and the remote node". Therefore, claim **6** merely broadens the scope of claim **3** of the copending application.

It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. See In re Karlson, 136 USPQ 184 (CCPA). Also note Ex parte Rainu, 168 USPQ 375 (Bd. App. 1969). The omission of a reference element whose function is not needed would be obvious to one skilled in the art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims **1-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **1**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of request and response management messages. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to combine the management frame usage of Barber with the system of Anim-Appiah in order to provide a way to efficiently gather signal quality measurements for processing and reference as stated in paragraph 78 of Barber.

Anim-Appiah in view of Barber teaches the apparatus as described above. Anim-Appiah in view of Barber does not explicitly teach the use of error vector

magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **2**, Anim-Appiah does not explicitly teach the use of association or reassociation MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **3**, Anim-Appiah does not explicitly teach the use of probe MAC frames. However, Barber teaches the use of probe request and response frames in IEEE 802.11 systems in paragraph 13. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for

probing purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **4**, Anim-Appiah does not explicitly teach the use of measurement MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for measurement purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **5**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48. Anim-Appiah does not explicitly teach the use of MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

8. Claim **6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **6**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

9. Claims **7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Shah et al. ("Shah") (U.S. 2002/0075834) and in further view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claims **7 and 8**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48. Anim-Appiah does not explicitly teach

the use of MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

10. Claims **9-11, 16-18, and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claims **9-11**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the

IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claims **16-18**, Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of association, reassociation or probe MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **23**, Anim-Appiah further teaches an OFDM system in Figure 1 where demodulator 114 is coupled to Fast Fourier Transformer (FFT) 120.

11. Claims **12-14 and 19-21** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **12**, Anim-Appiah in view of Barber teaches the apparatus of claim **9**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received

signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **13**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **14**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be

used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **19**, Anim-Appiah teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah also teaches the use of channel quality metrics by channel quality estimation unit 134 to estimate channel quality and select appropriate data rate. Anim-Appiah fails to explicitly teach a transmitter having a settable data rate as well as a data rate setting processor for producing the data rate signal for the transmitter in accordance with a measure of signal quality. However, Shah teaches modulation control unit 1320 coupled to signal quality detector 1350 in Figure 13 that adjusts modulation (data rate) based on the signal quality measurement. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to combine the data rate adjustment unit of Shah with the channel quality estimation of Anim-Appiah in view of Barber in order to maintain a desired signal quality as stated in paragraph 79 of Shah.

Regarding claim **20**, Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are

concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **21**, Anim-Appiah does not explicitly teach the data rate processor being part of a MAC layer processor. However, Shah teaches modulation control unit 1320 coupled to signal quality detector 1350 in Figure 13 that adjusts modulation (data rate) based on the signal quality measurement. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to combine the data rate adjustment unit of Shah with the channel quality estimation of Anim-Appiah in view of Barber in order to maintain a desired signal quality as stated in paragraph 79 of Shah.

12. Claim **26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **26**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls

multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

13. Claims **27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Shah et al. ("Shah") (U.S. 2002/0075834) and in further view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claims **27 and 28**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48. Anim-Appiah does not explicitly teach the use of MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

14. Claims **29-31, 38, and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claims **29-31**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **38**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48.

Regarding claim **39**, Anim-Appiah further teaches an OFDM system in Figure 1 where demodulator 114 is coupled to Fast Fourier Transformer (FFT) 120.

15. Claims **32-37 and 42-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of

Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **32**, Anim-Appiah in view of Barber teaches the method of claim **29**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **33**, Anim-Appiah further teaches a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6.

Regarding claim **34**, Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of association, reassociation or probe MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it

would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **35**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **36**, Anim-Appiah does not explicitly teach the use of probe MAC frames. However, Barber teaches the use of probe request and response frames in IEEE 802.11 systems in paragraph 13. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for probing purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **37**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claims **42 and 43**, Anim-Appiah in view of Barber does not explicitly teach the use of signal quality and packet error rate for selecting a remote station. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude and bit error rate as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude and error rate as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claims **44 and 45**, Anim-Appiah in view of Barber does not explicitly teach the use of signal quality and packet error rate for selecting a data rate. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude and bit error rate as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude and error rate as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

16. Claims **46 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claim **46**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of request and response management messages. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that

contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use the management frames of Barber in the IEEE 802.11 compliant system of Anim-Appiah in order to regulate authentication and association between access points and stations as spoken of in paragraph 15 of Barber.

Regarding claim **47**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

17. Claims **48-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **48**, Anim-Appiah in view of Barber teaches the method of claim **47**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector

1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **49**, Anim-Appiah further teaches a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6.

Regarding claim **50**, Anim-Appiah does not explicitly teach the use of association or reassociation MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **51**, Anim-Appiah does not explicitly teach the use of probe MAC frames. However, Barber teaches the use of probe request and response frames in

IEEE 802.11 systems in paragraph 13. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for probing purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **52**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48.

18. Claims **53-56** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **53**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of request and response management messages. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to combine the management frame usage of Barber with the system of Anim-Appiah in order to provide a way to efficiently gather

signal quality measurements for processing and reference as stated in paragraph 78 of Barber.

Anim-Appiah in view of Barber teaches the method as described above. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **54**, Anim-Appiah does not explicitly teach the use of association or reassociation MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **55**, Anim-Appiah does not explicitly teach the use of probe MAC frames. However, Barber teaches the use of probe request and response frames in IEEE 802.11 systems in paragraph 13. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for probing purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **56**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48. Anim-Appiah does not explicitly teach the use of MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

19. Claims **57 and 60** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claim **57**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134

used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **60**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48.

20. Claims **58 and 59** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **58**, Anim-Appiah in view of Barber teaches the apparatus of claim **57**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph

76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **59**, Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of association, reassociation or probe MAC frames. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

21. Claims **61 and 62** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claim **61**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in

paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in Figure 1. Anim-Appiah does not explicitly teach the use of request and response management messages. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use the management frames of Barber in the IEEE 802.11 compliant system of Anim-Appiah in order to regulate authentication and association between access points and stations as spoken of in paragraph 15 of Barber.

Regarding claim **62**, Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

22. Claim **63** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **63**, Anim-Appiah in view of Barber teaches the apparatus of claim **62**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

23. Claims **64-67** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claim **64**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in paragraph 6. Anim-Appiah also teaches a transmitter to transmit data to a receiver in

Figure 1. Anim-Appiah does not explicitly teach the use of request and response management messages. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to combine the management frame usage of Barber with the system of Anim-Appiah in order to provide a way to efficiently gather signal quality measurements for processing and reference as stated in paragraph 78 of Barber.

Anim-Appiah in view of Barber teaches the apparatus as described above. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Regarding claim **65**, Anim-Appiah does not explicitly teach the use of association or reassociation MAC frames. However, Barber teaches a passive listening process in

paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **66**, Anim-Appiah does not explicitly teach the use of probe MAC frames. However, Barber teaches the use of probe request and response frames in IEEE 802.11 systems in paragraph 13. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for probing purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

Regarding claim **67**, Anim-Appiah further teaches an IEEE 802.11 compliant system in Figure 1 and paragraph 48.

24. Claim **68** is rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598).

Regarding claim **68**, Anim-Appiah teaches a receiver 108 in Figure 1 that includes an A/D converter, a demodulator 114, and a channel quality estimator 134 used to estimate channel quality and select an appropriate data rate as spoken of in

paragraph 6. Anim-Appiah fails to teach the selection of an access point based on a signal quality measurement. However, Barber teaches a passive listening process in paragraph 74 and shown in Figure 6 where an access point listens to passing MAC frames (management frames) and populates a radio stats table shown in Figure 4B that contain measurements of signal quality. These measurements can be used for association/disassociation purposes as described in paragraph 86 of Barber. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use MAC frames taught in Barber for association and reassociation purposes in the IEEE 802.11 compliant system of Anim-Appiah in order to promote load balancing among access points as spoken of in paragraph 86, lines 7-12 of Barber.

25. Claims **69-72** are rejected under 35 U.S.C. 103(a) as being unpatentable over Anim-Appiah et al. ("Anim-Appiah") (U.S. 2004/0100898) in view of Barber et al. ("Barber") (U.S. 2004/0078598) and in further view of Shah et al. ("Shah") (U.S. 2002/0075834).

Regarding claims **69-72**, Anim-Appiah in view of Barber teaches the method of claim **68**. Anim-Appiah in view of Barber does not explicitly teach the use of error vector magnitude as a measure of quality. However, Shah teaches a signal quality detector 1350 that controls multiple transmission parameters through detection of a received signal quality measurement such as error vector magnitude as spoken of in paragraph 76. These references are considered analogous art in that they all are concerned with link quality management in wireless systems. At the time of the invention, it would have been obvious to someone of ordinary skill in the art to use error vector magnitude as

taught in Shah as a quality metric in the system of Anim-Appiah in view of Barber in order to provide the quality and reliability of a fiber optic link over a wireless link as stated in paragraph 19 of Shah.

Allowable Subject Matter

26. Claims **15, 22, 24, 25, 40, and 41** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

27. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim **15**, the prior art of record teaches the apparatus of claim **13**. The prior art of record fails to teach where the EVM of a beacon or probe response received from the access point is used to determine a maximum transmission rate that the link can support as well as to select an access point to associate with.

Regarding claim **22**, the prior art of record teaches the apparatus of claim **20**. The prior art of record fails to teach where the data rate processor includes a memory for storing a measure of EVM of the last packet received from a node and a running average of the measure of EVM of a number of previously received packets.

Regarding claim **24**, the prior art of record teaches the apparatus of claim **12**. The prior art of record fails to teach measuring the EVM by determining a function of the average of the squared Euclidean distance on the I,Q plane between decision-point samples of the received signal and the nearest ideal constellation points to the decision-point samples.

Regarding claim **25**, the prior art of record teaches the apparatus of claim **12**. The prior art of record fails to teach measuring the EVM by determining a function of the average of the squared Euclidean distance on the I,Q plane between decision-point samples of the received signal and the correct ideal constellation points for the signal.

Regarding claim **40**, the prior art of record teaches the method of claim **32**. The prior art of record fails to teach measuring the EVM by determining a function of the average of the squared Euclidean distance on the I,Q plane between decision-point samples of the received signal and the nearest ideal constellation points to the decision-point samples.

Regarding claim **41**, the prior art of record teaches the method of claim **32**. The prior art of record fails to teach measuring the EVM by determining a function of the average of the squared Euclidean distance on the I,Q plane between decision-point samples of the received signal and the correct ideal constellation points for the signal.

Conclusion

28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cervello et al. (U.S. 2002/0060995), Molteni et al. (U.S. 2004/0066759), Sindhushayana et al. (U.S. 6,760,313), and Warren et al. (U.S. 5,912,921) are all references that contain material pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (571) 272-3168. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER